

REMARKS

The Office Action in the above-identified application has been carefully considered and this amendment has been presented to place this application in condition for allowance.

Accordingly, reexamination and reconsideration of this application are respectfully requested.

Claims 1, 5-6, and 10 are in the present application. It is submitted that these claims were patentably distinct over the prior art cited by the Examiner, and that these claims were in full compliance with the requirements of 35 U.S.C. § 112. The changes to the claims, as presented herein, are not made for the purpose of patentability within the meaning of 35 U.S.C. sections 101, 102, 103 or 112. Rather, these changes are made simply for clarification and to round out the scope of protection to which Applicants are entitled. Claims 2-4 and 7-9 are canceled.

Claims 1-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jasper et al. (U.S. Patent 5,519,730) in view of Crawford (Published U.S. Patent Application 2002/0176483) and Park (U.S. Patent 6,470,030).

Jasper discloses a channel compensation device and method, which use pilot symbols which are distributed over several sub-channels (cf. Figs. 4A to 4G). More specifically, Jasper et al. suggests periodic as well as a-periodic pilot symbol sequences (cf. column 6, lines 37 to 39). The channel gain is interpolated over time and/or frequency and is compensated for by the receiver, as necessary for each particular sub-channel to recover the information of interest (cf. column 6, lines 45 to 51). Further, Jasper suggests to stagger pilot sequences for the various sub-channels in time relative to each other to allow interpolation over time and frequency of estimated pilot references (cf. column 6, lines 53 to 58).

Therefore, Jasper does not suggest or provide pilot symbols which are in the same timeslot as the data which are being phase compensated for. Although in some cases (cf. Figs. 4A to 4G) there might be a pilot symbol in the same timeslot as the data which are being phase compensated for, this is certainly not the case for every data which are being phase compensated. This would only be possible with one of the sub-channels having a continuous stream of pilot symbols, which is not disclosed. To the contrary, Jasper has an explicit object to reduce the bandwidth consumed by pilot symbols, i.e. to use a low number of pilot symbols (cf. column 1, lines 43 to 47 and column 6, lines 51 to 53).

In addition, as admitted by the Examiner, Jasper does not mention the use of a common phase error correction value to perform the channel estimation.

Crawford suggests an optimum pilot phase error metric based on a maximum likelihood estimation approach in the baseband processing portion of a OFDM based receiver to compensate for poor local oscillator performance. Hereby, pilot symbols are used according to the IEEE 802.11a and HiperLAN2 standards (cf. paragraph 0041). Both standards suggest regularly distributed pilot symbols, but do not suggest using a continuous stream of pilot symbols in at least one of the OFDM subcarriers. Therefore, Crawford cannot suggest to provide pilot symbols in the same timeslot for every data symbol which is to be phase compensated.

Park suggest an OFDM receiver which uses a continual pilot carrier in the OFDM frame frequency domain to eliminate a frequency offset (cf. column 7, lines 3 to 8). However, Park does not suggest to use the continual pilot carrier to obtain a common phase error correction value for a channel estimation.

Further, since Jasper suggest reducing the number of pilot symbols, a person skilled in the art would never combining the teachings of Jasper and Park, since Park suggest the use of continual pilot symbols which represents a significant increase in the number of pilot symbols.

Even if a person skilled in the art combined the three cited references, Jasper, Crawford and Park, the combination of their teachings would not lead a person skilled in the art to the subject matter of the present invention as defined in the amended independent claims. Specifically, the present invention suggest calculating a common phase error correction value on the basis of the continuous stream pilot symbol in the same timeslot as the data symbol to be channel estimated and on the basis of the continuous stream pilot symbols occurring in the same timeslot as the at least two distributed pilot symbols used in the channel estimation. Therefore, the present invention is considered to be novel and inventive over the prior art.


In view of the foregoing amendment and remarks, it is respectfully submitted that the application as now presented is in condition for allowance. Early and favorable reconsideration of the application are respectfully requested.

No additional fees are deemed to be required for the filing of this amendment, but if such are, the Examiner is hereby authorized to charge any insufficient fees or credit any overpayment associated with the above-identified application to Deposit Account No. 50-0320.

If any issues remain, or if the Examiner has any further suggestions, he/she is invited to call the undersigned at the telephone number provided below. The Examiner's consideration of this matter is gratefully acknowledged.

Respectfully submitted,
FROMMER LAWRENCE & HAUG LLP

By:

A handwritten signature in black ink, appearing to read "Darren M. Simon", written over a horizontal line.

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